

Light-Duty Vehicle Fuel Economy

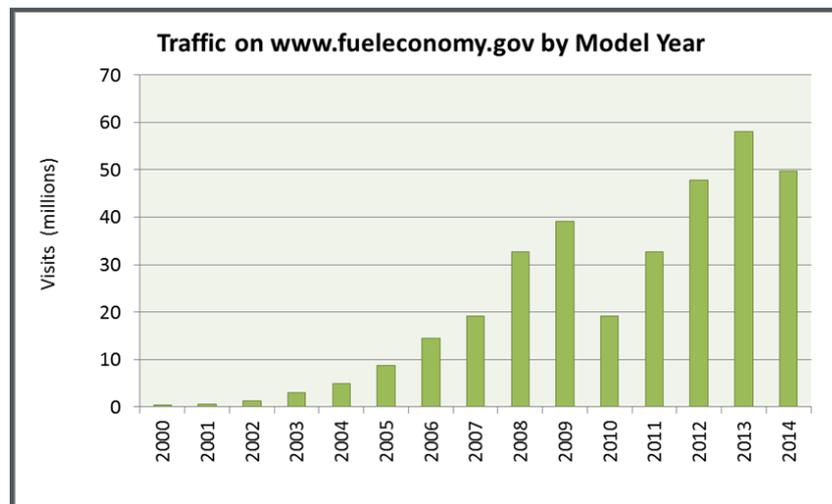
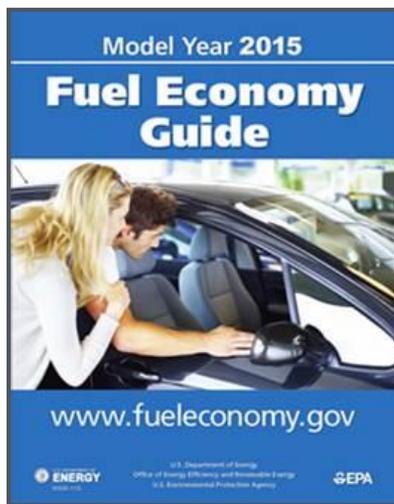
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Bo Saulsbury

Oak Ridge National Laboratory
saulsburyjw@ornl.gov

Fuel Economy Guide and [Fueleconomy.gov](http://www.fueleconomy.gov)

- Fulfill DOE's statutory responsibility to provide fuel economy information to the public in collaboration with EPA (49 USC 32908, 2006).
- *MY 15 Guide*: with NADA, distributed to > 33,000 new car dealers; distributed > 20,000 public libraries and > 20,000 credit unions; delivered 125,000 copies to GPO for distribution.
- [Fueleconomy.gov](http://www.fueleconomy.gov) hosted > 49.7 million user sessions in MY14, second highest total ever (MY13 still the highest, > 58 million).



Current Clean Cities Activities in Light-Duty Vehicle Fuel Economy



Fuel Economy Research

ORNL: Develop and validate driving and maintenance tips, including:

- Clogged intake air filters
- Air conditioning
- Use of car top cargo boxes, trailers, etc.
- Steady speed fuel economy
- “Where the Energy Goes” diagrams
- Idle fuel consumption
- Tips for HEVs and PHEVs
- Cold and hot weather tips
- Speed vs. MPG estimates

ORNL: Develop a “Personalized Fuel Economy” model and tool

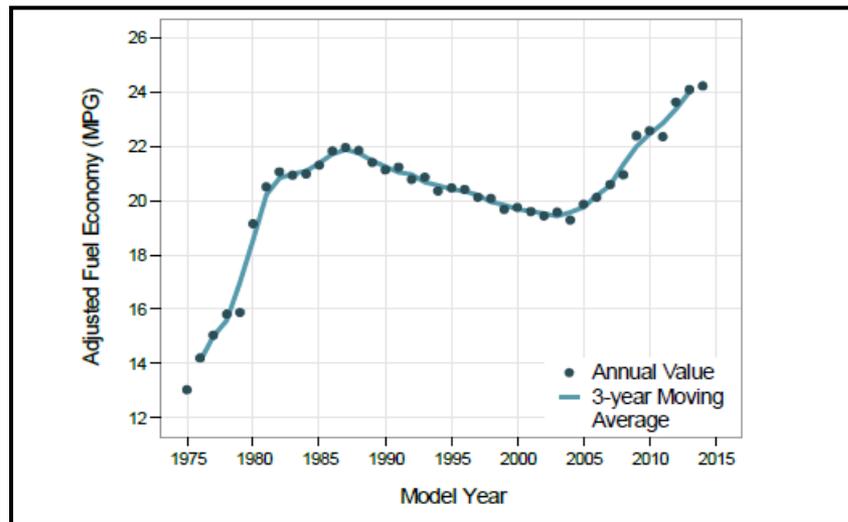
University of Tennessee: Analyze the accuracy of EPA fuel economy estimates vs. real world data from “My MPG”

University of California, Davis: Survey research on how consumers value fuel economy



Current State of the Market for Fuel Economy

- **New light-duty vehicle fuel economy in the U.S. has increased significantly since 1975; average fuel economy increased 25% between 2005 and 2014.**



Adjusted fuel economy of new light-duty vehicles by model year
(Source: EPA 2014)

- **~ 253 million light-duty vehicles in the U.S. (IHS Automotive). So, largest market for fuel economy is existing vehicles (vs. new vehicles: ~ 15.3 million sold in 2013). So, driving and maintenance tips are important!**

Increased Fuel Economy—New Cars

- **Likely to continue for next decade: in 2012 NHTSA and EPA issued new Corporate Average Fuel Economy (CAFE) standards, setting target at the equivalent of 54.5 MPG by 2025.**
- **New standard will require MY 25 light-duty vehicles to average about 49 MPG vs. MY 14 combined standard of 34.1 MPG for cars and 26.3 MPG for light-duty trucks (NHTSA 2014).**

- **Continue existing outreach and education efforts, but expand them to better coordinate with other efforts within Clean Cities.**
- **Seek input from Coordinators on existing and new tools needed to convey information to consumers, fleets, schools, and others.**
- **Some existing tools:**
 - **Find and Compare Cars**
 - **AFDC Cost Calculator**
 - **Save Money Calculator**
 - **Can a Hybrid Save Me Money?**
 - **My Plug-in Hybrid Calculator**
 - **What is the Speed Penalty for My Car?**
 - **AFDC Petroleum Reduction Planning Tool (Fleets)**
 - **AFleet tool**
 - **GREET Fleet Footprint Tool**
 - **Web services data and widgets for developers**
 - **Find-a-Car Mobile Application (Under Development)**

- **Based on Coordinator input, develop “Fuel Economy Tool Kit” to be used by Coordinators (and anyone else!).**
- **Tool Kit can include existing tools on fueleconomy.gov and AFDC, as well as new tools as developed. Also, provide Coordinators with any training and information needed for Tool Kit.**
- **Continue to investigate possibility of an Ad Council public service ad campaign on fuel economy. Would reach a much larger and more diverse consumer audience than previous efforts.**

- **U.S. market used vehicles much larger than market new vehicles. In 2013, ~ 42 million used sold, compared with ~ 15.3 million new (Ward's Automotive 2015).**
- **Challenge: providing reliable fuel economy information. Unlike new vehicles, used vehicles not required to display new car MPG label.**
- **Also, both used car buyers and sellers rely on wide variety of information sources, from “want ads” in local newspapers to new and used car dealerships to on-line car shopping sites.**

- **Fueleconomy.gov and “Find and Compare Cars” are supported by EPA fuel economy estimates for all vehicles sold in the U.S. since MY 1984.**
- **Fueleconomy.gov has “Used Car MPG Label” tool; helps sellers advertise (both on-line and window sticker) original EPA fuel economy estimate for their used vehicle.**
- **Work with Coordinators to expand outreach efforts to provide used car fuel economy data and Used Car MPG Label to new and used auto dealers and on-line car shopping sites (eBay Cars, AutoTrader.com, CarMax.com, etc.).**
- **Include Used Car MPG Label in Fuel Economy Tool Kit, and provide Coordinators with training and information.**

- **Recent research suggests that consumers lack confidence in official MPG estimates.**
- **Problem: estimates are inaccurate for many individuals even though they may be unbiased for the population as a whole.**
- **Opportunity: there is value in developing “personalized” fuel economy estimates.**

- **Develop model to support new “Personalized MPG Calculator” to produce fuel economy estimates based on driver’s actual drive cycle data as recorded using on-board diagnostic (OBD) systems. When developed, model will support new tool on fueleconomy.gov.**
- **Near term: provide Coordinators with information about data from “My MPG” database and research that describes how real world fuel economy varies from EPA estimates.**
- **Eventually: include Personalized MPG Calculator in Fuel Economy Tool Kit, and provide Coordinators with training to help consumers and fleets develop more accurate, personalized fuel economy estimates for use in comparing vehicles.**
- **Seek feedback from Coordinators on ways to make this information, and especially Personalized MPG Calculator, more useful to consumers, fleets, and other organizations.**

- **Consumers still rely on fueleconomy.gov, but are increasingly likely to access it via mobile devices (tablets and smart phones) rather than personal computers.**
- **Continue to reformat fueleconomy.gov using “responsive design” to improve website appearance and function on all devices, but especially on smart phones and tablets.**
- **Develop mobile applications for most popular sections of website, starting with Find-a-Car and My MPG.**
- **Provide Coordinators with training and information about mobile tools and applications for fueleconomy.gov, and include tools in Fuel Economy Tool Kit.**
- **Seek feedback from Coordinators on types of information and tools needed in mobile format.**

Potential Target Market/Strategies: Periods of Low Gasoline Prices

- When gasoline prices are low, consumers and media pay less attention to fuel economy, and thus to *Fuel Economy Guide* and fuelconomy.gov.
- Work with Coordinators to illustrate benefits of both alternative fuels and fuel economy in a world of volatile oil prices.
- Example: use historical data on oil price volatility to construct (1) “expected” fuel prices over the lifetime of a vehicle and (2) a set of illustrative future fuel price paths that illustrate potential for volatility.
- Could lead to new tools on fuelconomy.gov and in Fuel Economy Tool Kit to address low gasoline prices when consumers and fleets are making vehicle purchase decisions.



Potential Target Market/Strategies: Advanced Technology Vehicles



- **Hybrids, PHEVs, and EVs becoming increasingly common; hydrogen fuel cell vehicles entering the market in California.**
- **Each vehicle type requires different method of measuring fuel economy. Also, as technologies evolve, effects of driver behavior and vehicle maintenance on fuel economy will change.**
- **Continue research to update driving and maintenance tips, especially for advanced technology vehicles.**
- **Provide Coordinators with training and information about existing resources on fueleconomy.gov, and any new information or tools developed, and include resources in Fuel Economy Tool Kit.**
- **Seek feedback from Coordinators on types of information and tools needed to help consumers and fleets get the best fuel economy from advanced technology vehicles.**

Bo Saulsbury

Oak Ridge National Laboratory

saulsburyjw@ornl.gov; 865-574-4694

Janet Hopson

The University of Tennessee

hopsonjl@ornl.gov; 865-946-1460

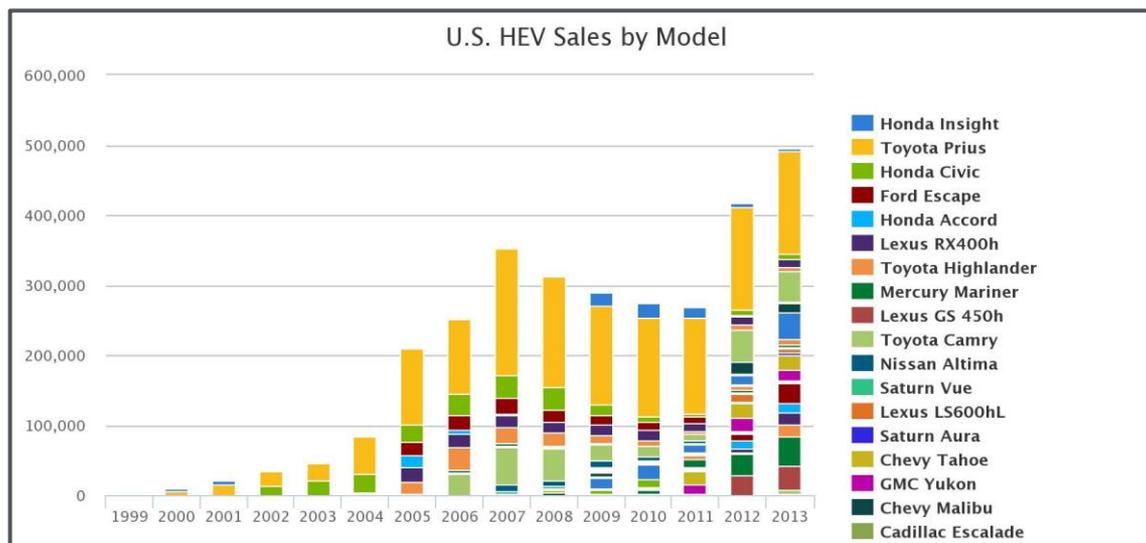
David Greene

Robert Gibson

The University of Tennessee

Hybrid-Electric Vehicles

- Of the ~ 253 million light-duty vehicles in the U.S., ~ 3.5 million (~ 1.4%) are hybrids.
- Currently, hybrid sales represent ~ 3.2% of all light-duty vehicle sales.



(Source: <http://www.afdc.energy.gov/data/10301>)

Hybrid-Electric Vehicles

- **2014: HEV sales down 8.4% compared to 2013, while PHEVs (up 22.5%) and EVs (up 27.7%) have seen “impressive growth.”** (<http://www.paicehybrid.com/october-2014-hybrid-car-sales-report/>)
- **Some analysts believe low gasoline prices in 2014 adversely affected HEV more than PHEV or EV sales.**
- **Another theory: environmentally conscious and innovative customers increasingly purchase EVs and PHEVs. Meanwhile, HEVs “must now attract new buyers who otherwise would have bought a conventional automobile.”**
(http://www.greencarreports.com/news/1095243_hybrid-sales-searching-for-a-silver-lining-in-flat-figures)